

What is claimed is:

1. A BSG comprising:
- (a) a polynucleotide of SEQ ID NO:1, 2, 3, 4, or 5, or a variant thereof;
- (b) a protein expressed by a polynucleotide of SEQ ID NO:1, 2, 3, 4, or 5, or a variant thereof; or
- (c) a polynucleotide which is capable of hybridizing under stringent conditions to the antisense sequence of SEQ ID NO: 1, 2, 3, 4, or 5.
2. The BSG of claim 1 wherein the protein comprises SEQ ID NO:6.
3. A method for diagnosing the presence of breast cancer in a patient comprising:
- (a) determining levels of a BSG of claim 1 in cells, tissues or bodily fluids in a patient; and
- (b) comparing the determined levels of BSG with levels of BSG in cells, tissues or bodily fluids from a normal human control, wherein a change in determined levels of BSG in said patient versus normal human control is associated with the presence of breast cancer.
4. A method of diagnosing metastases of breast cancer in a patient comprising:
- (a) identifying a patient having breast cancer that is not known to have metastasized;
- (b) determining levels of a BSG of claim 1 in a sample of cells, tissues, or bodily fluid from said patient; and
- (c) comparing the determined BSG levels with levels of BSG in cells, tissue, or bodily fluid of a normal human control, wherein an increase in determined BSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

Physical Properties		Chemical Properties		Mechanical Properties		Thermal Properties		Electrical Properties	
Property	Value	Property	Value	Property	Value	Property	Value	Property	Value
Density	1.25 g/cm <sup>3</sup>	Flammability	Class B	Tensile Strength	15 MPa	Softening Point	180 °C	Volume Resistance	10 <sup>12</sup> Ω·cm
Viscosity	0.5 Pa·s	Acid Resistance	Good	Elongation at Break	5%	Thermal Stability	200 °C	Surface Resistance	10 <sup>10</sup> Ω
Boiling Point	100 °C	Alkali Resistance	Good	Modulus of Elasticity	1.5 GPa	Decomposition Temp	300 °C	Dielectric Constant	2.5
Melting Point	100 °C	Oxidation Resistance	Good	Poisson's Ratio	0.3	Thermal Conductivity	0.2 W/m·K	Dielectric Loss	0.01
Flash Point	100 °C	UV Resistance	Good	Impact Strength	5 kJ/m <sup>2</sup>	Thermal Expansion Coeff	10 <sup>-5</sup> /°C	Volume Change	0.1%
Auto-ignition Temp	200 °C	Water Absorption	0.1%	Hardness	50 Shore A	Thermal Shock Resistance	100 °C/min	Thermal Aging	1000 h
Limiting Oxygen Index	21	Hydrolysis Resistance	Good	Compression Modulus	1.5 GPa	Thermal Cycling	100 cycles	Thermal Fatigue	100 cycles
Char Yield at 500 °C	10%	Biodegradability	Low	Shear Modulus	1.5 GPa	Thermal Degradation	100 °C	Thermal Oxidation	100 °C
Char Yield at 600 °C	5%	Compostability	Low	Bulk Modulus	1.5 GPa	Thermal Decomposition	300 °C	Thermal Polymerization	100 °C
Char Yield at 700 °C	2%	Recyclability	Low	Dynamic Modulus	1.5 GPa	Thermal Crystallization	100 °C	Thermal Crosslinking	100 °C
Char Yield at 800 °C	1%	Reusability	Low	Thermal Conductivity	0.2 W/m·K	Thermal Annealing	100 °C	Thermal Curing	100 °C
Char Yield at 900 °C	0.5%	Recovery	Low	Thermal Expansion	10 <sup>-5</sup> /°C	Thermal Shrinkage	100 °C	Thermal Swelling	100 °C
Char Yield at 1000 °C	0.1%	Reformation	Low	Thermal Contraction	10 <sup>-5</sup> /°C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1100 °C	0.05%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1200 °C	0.01%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1300 °C	0.005%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1400 °C	0.001%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1500 °C	0.0005%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1600 °C	0.0001%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1700 °C	0.00005%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1800 °C	0.00001%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 1900 °C	0.000005%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C
Char Yield at 2000 °C	0.000001%	Reconstruction	Low	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C	Thermal Relaxation	100 °C

5. A method of staging breast cancer in a patient having breast cancer comprising:

- (a) identifying a patient having breast cancer;
- (b) determining levels of a BSG of claim 1 in a sample  
5 of cells, tissue, or bodily fluid from said patient; and
- (c) comparing determined BSG levels with levels of BSG  
in cells, tissues, or bodily fluid of a normal human control,  
wherein an increase in determined BSG levels in said patient  
versus the normal human control is associated with a cancer  
10 which is progressing and a decrease in the determined BSG  
levels is associated with a cancer which is regressing or in  
remission.

6. A method of monitoring breast cancer in a patient  
15 for the onset of metastasis comprising:

- (a) identifying a patient having breast cancer that is not known to have metastasized;
- (b) periodically determining levels of a BSG of claim 1 in samples of cells, tissues, or bodily fluid from said patient; and
- (c) comparing the periodically determined BSG levels with levels of BSG in cells, tissues, or bodily fluid of a normal human control, wherein an increase in any one of the periodically determined BSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

7. A method of monitoring a change in stage of breast cancer in a patient comprising:

- 30 (a) identifying a patient having breast cancer;  
(b) periodically determining levels of a BSG of claim 1 in cells, tissues, or bodily fluid from said patient; and  
(c) comparing the periodically determined BSG levels with levels of BSG in cells, tissues, or bodily fluid of a  
35 normal human control, wherein an increase in any one of the

a) Environmental conditions		b) Temperature		c) Humidity		d) Wind speed		e) Rainfall		f) Cloud cover		g) Solar radiation		h) Air quality		i) Noise level		j) Vibration level							
Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit	Parameter	Unit						
Temperature	°C	Temperature	°C	Humidity	%	Humidity	%	Wind speed	m/s	Wind speed	m/s	Rainfall	mm	Rainfall	mm	Cloud cover	%	Solar radiation	W/m²	Air quality	µg/m³	Noise level	dB	Vibration level	m/s²
25.0	°C	25.0	°C	60.0	%	60.0	%	1.0	m/s	1.0	m/s	0.0	mm	0.0	mm	10.0	%	1000.0	W/m²	10.0	µg/m³	50.0	dB	0.0	m/s²
20.0	°C	20.0	°C	50.0	%	50.0	%	0.5	m/s	0.5	m/s	0.0	mm	0.0	mm	5.0	%	500.0	W/m²	5.0	µg/m³	40.0	dB	0.0	m/s²
15.0	°C	15.0	°C	40.0	%	40.0	%	0.2	m/s	0.2	m/s	0.0	mm	0.0	mm	2.0	%	200.0	W/m²	2.0	µg/m³	30.0	dB	0.0	m/s²
10.0	°C	10.0	°C	30.0	%	30.0	%	0.1	m/s	0.1	m/s	0.0	mm	0.0	mm	1.0	%	100.0	W/m²	1.0	µg/m³	20.0	dB	0.0	m/s²
5.0	°C	5.0	°C	20.0	%	20.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.5	%	50.0	W/m²	0.5	µg/m³	10.0	dB	0.0	m/s²
0.0	°C	0.0	°C	10.0	%	10.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.2	%	20.0	W/m²	0.2	µg/m³	5.0	dB	0.0	m/s²
-5.0	°C	-5.0	°C	5.0	%	5.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.1	%	10.0	W/m²	0.1	µg/m³	2.0	dB	0.0	m/s²
-10.0	°C	-10.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-15.0	°C	-15.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-20.0	°C	-20.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-25.0	°C	-25.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-30.0	°C	-30.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-35.0	°C	-35.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-40.0	°C	-40.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-45.0	°C	-45.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-50.0	°C	-50.0	°C	0.0	%	0.0	%	0.0	m/s	0.0	m/s	0.0	mm	0.0	mm	0.0	%	0.0	W/m²	0.0	µg/m³	0.0	dB	0.0	m/s²
-55.0																									

periodically determined BSG levels in the patient versus the normal human control is associated with a cancer which is progressing in stage and a decrease is associated with a cancer which is regressing in stage or in remission.

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8. A method of identifying potential therapeutic agents for use in imaging and treating breast cancer comprising screening compounds for an ability to bind to or decrease expression of a BSG of claim 1 relative to the BSG in the absence of the compound wherein the ability of the compound to bind to the BSG or decrease expression of the BSG is indicative of the compound being useful in imaging and treating breast cancer.

15           9.    An antibody which specifically binds a polypeptide  
              encoded by a BSG of claim 1.

10. A method of imaging breast cancer in a patient comprising administering to the patient an antibody of claim 9.

11. The method of claim 10 wherein said antibody is labeled with paramagnetic ions or a radioisotope.

25        12. A method of treating breast cancer in a patient  
comprising administering to the patient a compound which  
downregulates expression or activity of a BSG of claim 1.

13. A method of inducing an immune response against a  
30 target cell expressing a BSG of claim 1 comprising delivering  
to a human patient an immunogenically stimulatory amount of  
a BSG polypeptide so that an immune response is mounted  
against the target cell.

14. The method of claim 13 wherein the BSG polypeptide is encoded by a polynucleotide of SEQ ID NO:1, 2, 3, 4, or 5.

15. A vaccine for treating breast cancer comprising a  
5 BSG of claim 1.

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